

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

RECEIVED

(MAR 17 1994)

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)

)
)
) Rulemaking to Amend Part 1 and Part 21
) of the Commission's Rules to Redesignate
) the 27.5 - 29.5 GHz Frequency Band and
) to Establish Rules and Policies for Local
) Multipoint Distribution Service)

CC Docket No. 92-297

RM-7872; RM-7722

APPLICATION FOR MEMBERSHIP AND COMMENTS
OF LORAL QUALCOMM SATELLITE SERVICES, INC.

Pursuant to Notice provided in the Federal Register, 59 FR 7961 (February 17, 1994) and 59 FR 7964 (February 17, 1994), the Federal Advisory Committee Act (FACA), 5 U.S.C. App. 2, and the Negotiated Rulemaking Act of 1990 (NRA), Pub. L. 101-648, November 29, 1990, 104 Stat. 4969, Loral Qualcomm Satellite Services, Inc. (LQSS), by its counsel, hereby:

(1) agrees with the Commission's identification of it as an interest that will be significantly affected by the outcome of the proceeding and accordingly submits its application for membership on the Advisory Committee; and

(2) submits these comments on the proposed Advisory Committee to develop technical regulations for the use of the 28 GHz band by proposed satellite and terrestrial uses. In this connection LQSS herein also submits its Comments on the Second Notice of Proposed Rulemaking, CC Docket No. 92-297, In the Matter of Rulemaking to Amend Part 1 and Part 21 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service, FCC 94-12, released February 11, 1994.

I. Application for Membership on the Advisory Committee

As the Commission recognized, 59 FR 7961 at 7962, LQSS is an entity with interests that will be affected by the proposed negotiated rulemaking. LQSS agrees with this designation, and

No. of Copies rec'd
List ABCDE

057

accordingly, hereby submits its application for membership on the Advisory Committee which the Commission proposes to convene in this docket.

LQSS is an applicant for authority to construct a low-earth orbit (LEO) MSS/RDSS system, "Globalstar," (LQSS Application, File Nos. 19-DSS-P-91(48) and CSS-91-014, filed June 3, 1991) and filed a related rulemaking petition (LQSS Petition for Rulemaking, filed November 4, 1991). LQSS makes this application in order that its interest, which will be significantly affected by the proposed rules, will be adequately represented.

Pursuant to the requirements of the NRA, 5 U.S.C. § 584(b), and 59 FR 7961 at 7962, LQSS submits the following information:

(A) The applicant is Loral Qualcomm Satellite Services, Inc. (LQSS). LQSS will represent its interest as an applicant for MSS/RDSS authorization, whose application has been accepted for filing. As the Commission has recognized, feeder links are an integral part of a satellite system.¹ As an applicant for authority to construct a satellite system which will require the use of spectrum for feeder links, and in light of the possibility that a portion of those feederlinks may be located in the 28 GHz band, LQSS would be directly affected by the rules which are adopted in this proceeding.

LQSS does not and will not have "a similar point of view" nor will it be "likely to be affected in a similar manner" as other entities or interests set forth in the Federal Register as potential members of the Committee. See House Report No. 101-461 on H.R. 743, Report of the Committee on the Judiciary, 101st Cong., 2d Sess., at 12 (1990); see also Senate Report No. 101-97 on S. 303, Report of the Committee on Government Affairs, 101st Cong., 1st Sess., at 11, 13-15 (1989). Accordingly, since LQSS "will be significantly affected by the proposed rule and...[its] interests will not be adequately represented by any person specified in [the] notice," 5 U.S.C. § 584(b), it is entitled to participate separately and independently on the Committee.

¹ Second Notice of Proposed Rulemaking, CC Docket No. 92-297, FCC 94-12, released February 11, 1994, at para. 18.

(B) LQSS, the applicant, does not seek to represent any other party.

(C) Attached to this application is a written commitment from the applicant that it "shall actively participate in good faith in the development of the rules under consideration." (59 FR 7963);

(D) Other persons specified in the Federal Register do not "adequately represent the interests of the entity submitting the application" (59 FR 7963) because: (1) of the entities specified, five are competing and potentially mutually exclusive applicants for MSS/RDSS in the same user link bands for which LQSS has applied (American Mobile Satellite Corporation, Motorola Satellite Communications, Inc., Constellation Communications, Inc., Ellipsat Corporation and TRW Inc.); (2) two of the entities specified are applicants for feeder link spectrum in the 28 GHz band (Motorola, TRW Inc.); (3) the two other entities are applicants, along with LQSS, for feeder link spectrum in the 5/6 GHz band (Constellation, Ellipsat); (4) although LQSS believes that it can share feeder link spectrum with other CDMA RDSS/MSS systems in the 5/6 GHz band, LQSS believes that various technical factors preclude sharing of feeder link spectrum by multiple RDSS/MSS systems in the 28 GHz band; (5) each of the RDSS/MSS applicants has proposed different technical facilities, as well as differing service concepts, and these technical and service differences will influence the amount of feeder link spectrum required, the ability to share feeder link spectrum with other RDSS/MSS systems, and sharing of spectrum between LMDS facilities and proposed RDSS/MSS systems. These factors require each entity independently to assess the technical and service impact of any proposed action on its system and independently to assess its own interests and to represent itself; and (6) no other entity specified in the Notice has the technical, service or other expertise or knowledge to be aware of relevant issues or represent LQSS.

(E) The individual designated by the applicant, LQSS, to represent its interest, as shown in the attached written commitment, is Robert Wiedeman. (Mr. Wiedeman and LQSS will be represented from time to time by Jay Ramasastry or Leslie A. Taylor.)

This application demonstrates that the NRA and Notice criteria for membership on the Advisory Committee in this docket have been met. Accordingly, LQSS submits this application for membership on the Advisory Committee and asks that it be promptly granted.

II. Comments on the Scope of the Proposed Negotiated Rulemaking and the Second Notice of Proposed Rulemaking on the Local Multipoint Distribution Service (LMDS)

The Commission, in its Second Notice of Proposed Rulemaking, ("Second LMDS NPRM") proposes establishment of a Negotiated Rulemaking Committee (NRMC) to develop technical regulations concerning use of the 28 GHz band by satellite and terrestrial uses, on a co-frequency and co-coverage basis.² In the event that sharing is determined to not be possible for some of the proposed uses of this band, the Commission seeks detailed analyses of the costs and benefits of various alternative uses of the band.³ The Commission suggests that establishment of the proposed Local Multipoint Distribution Service (LMDS) Negotiated Rulemaking Committee (NCRM) be used to assist in development of frequency coordination and sharing criteria for space and terrestrial services and technical parameters for LMDS.⁴

LQSS supports establishment of the proposed NRMC and notes that it previously submitted comments with regard to its concerns that sharing between MSS/RDSS feederlink uplinks and LMDS may be difficult or impractical,⁵ and that the bands proposed for allocation to LMDS are allocated for satellite services on an international basis.

The Commission, in this Second LMDS NPRM, proposes use of a Negotiated Rulemaking to resolve complex issues regarding sharing of spectrum by a number of diverse communications services, including fixed-satellite service, feeder links for mobile satellite service(MSS), particularly for non-geostationary MSS systems above 1 GHz, and the proposed LMDS, a terrestrial omnidirectional video distribution service.

Although LQSS believes that use of a negotiated rulemaking may assist the Commission in determining whether to allocate spectrum for LMDS, and if so, how much spectrum, and under what conditions, the Commission should include in this proceeding a number of issues which

² Second LMDS NPRM, at para. 2.

³ Id.

⁴ Id., at para. 3.

⁵ LQSS Comments on the First LMDS NPRM, filed March 16, 1993.

were not addressed or were only partially addressed in the Second LMDS NPRM. These issues are discussed below.

A. The Commission Should Expand the Scope of the NRMC

The Commission, in the Second LMDS NPRM, acknowledges the importance of identifying suitable feeder link frequencies for MSS above 1 GHz systems, such as that proposed by LQSS.⁶ The Commission says that "the prospect of finding suitable LEO feeder link frequencies below 15 GHz is not encouraging because most of the available FSS allocations are encumbered by existing domestic and international services or by other service limitations."⁷ The Commission says that "it appears that the most likely alternative [for MSS above 1 GHz feeder links] at the present time is the 20/30 GHz band."⁸ In the licensing proceeding for MSS systems, the Commission states that it "expects to be able to identify sufficient spectrum within the 27.5-30.0 GHz band to satisfy the uplink feeder link requirements of all MSS above 1 GHz licensees."⁹

LQSS urges the Commission to expand the scope of the NRMC to address the spectrum that will be required for downlink feeder link spectrum in the 17.7 - 20.2 GHz band. As LQSS' research and technical analysis have demonstrated, identifying suitable downlink feeder link spectrum is more difficult than identifying suitable uplink feeder link spectrum. It can not simply be assumed that matching uplink feeder link spectrum can be found in the 17.7-20.2 GHz bands. Even if the sharing issues in the 27.5-30.0 GHz band could be satisfactorily resolved in this proceeding, there is no assurance that downlink feeder links for all MSS above 1 GHz systems can be identified in the 17.7-20.2 GHz band. Moreover, absent inclusion of this band as part of

⁶ Second LMDS NPRM, at para. 20.

⁷ Id.

⁸ Supra, at para. 22.

⁹ Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5 MHz/ 2483.5-2500 MHz Frequency Bands, Notice of Proposed Rulemaking, CC Docket 92-166, FCC Rcd (1994), FCC 94-11, released January 19, 1994, ("MSS NPRM") at para. 77.

this proceeding, the other users of the band will not have participated in the NRMC, and thus their interests would not have been considered. Identifying suitable uplink frequency, without downlink frequency, would not resolve the frequency availability needs of MSS systems.

Consequently, because both the uplink and downlink feeder link spectrum issues must be resolved as soon as possible, the Commission should expand the scope of the Negotiated Rulemaking to include sharing between downlink feeder links for MSS above 1 GHz systems and any other services which may be permitted to use the 17.7-20.2 GHz band.

B. The Commission's Preliminary Conclusion that All MSS above 1 GHz System Feeder Links Can Be Accommodated in the 20/30 GHz Band Should be Reconsidered

In proposing establishment of the 28 GHz Negotiated Rulemaking as well as in its Notice of Proposed Rulemaking with regard to the licensing of the MSS above 1 GHz systems, the Commission expresses its belief that it can accommodate all the feeder link requirements of all MSS above 1 GHz licensees in the 20/30 GHz bands.¹⁰ The Commission has not yet sought, nor received comment, on this assumption.

LQSS urges the Commission to reconsider this preliminary conclusion. Both the amount of feeder link spectrum required by individual systems and the ability to share feeder link spectrum may vary dramatically depending upon the frequency band to be utilized. For example, in the Globalstar system, it appears that up to 400 MHz of spectrum in each direction on an unshared basis might be required if feeder links were located in the 20/30 GHz band, whereas from 150 to 200 MHz in each direction would be required if feeder links were located in the C-band. And, if C-band were used for feederlinks, it appears that the spectrum could be shared with other CDMA service providers.

A dramatic increase in feeder link requirements if the 20/30 GHz band is used for all MSS above 1 GHz systems could have a significant impact on the ability of the Negotiated Rulemaking Committee to address its assigned tasks. For this reason, LQSS urges the

¹⁰ Second LMDS NPRM, at para. 22.

Commission to reconsider its initial conclusion and acknowledge that the feeder link requirements for MSS above 1 GHz systems may be vastly different at 20/30 GHz than in the bands applied for.¹¹

C. The Commission Must Continue to Explore Use of Bands below 15 GHz for MSS above 1 GHz Feeder Links

Although the Commission has stated its belief that it can accommodate the feeder link requirements of all the MSS above 1 GHz applicants in the 20/30 GHz bands, this belief should not preclude vigorous efforts to identify feeder link spectrum in the bands below 15 GHz.¹²

LQSS, Constellation and Ellipsat each have proposed use of feeder link spectrum in the 5/6 GHz band. The MSS above 1 GHz Advisory Committee Report recommended to the Commission "that the FCC identify and/or allocate suitable spectrum below 15 GHz, and preferably below 10 GHz, for MSS/RDSS feeder links."¹³ In addition, the Advisory Committee Report states that the applicants proposing to use feeder links in the 5/6 GHz bands "have agreed that they can share the same spectrum for feeder links and will develop any necessary sharing arrangements amongst themselves."¹⁴

¹¹ The increased bandwidth requirements for feeder links located in the 20/30 GHz band is an additional reason to include downlink spectrum and affected users of the 17.7-20.2 GHz band in the Negotiated Rulemaking proceeding.

¹² The Commission, in the MSS NPRM, stated that it "will continue to pursue bands below 15 GHz for MSS above 1 GHz feederlinks," MSS NPRM, cited supra at para. 77.

¹³ Report of the MSS above 1 GHz Advisory Committee, p. 30, April 7, 1993.

¹⁴ Id.

The Commission, in proposing establishment of the 28 GHz NRMC, states its concerns about availability of the downlink feeder link spectrum in the 5 GHz band which is sought by LQSS, Constellation and Ellipsat.¹⁵ However, the Commission never explains why the uplink feeder link spectrum in the 6 GHz band sought by these applicants would not be available. Moreover, since submission of the MSS above 1 GHz Advisory Committee Report, substantial additional analysis of the use of feeder links has been undertaken. In particular, the use of frequencies in the 4/6 GHz bands in the reverse direction from FSS allocations appears to be extremely promising.¹⁶ Consequently, LQSS urges the Commission to continue examining the use of bands below 15 GHz, and particularly in the 4/6 GHz range, for MSS above 1 GHz feeder links.

This work should continue during the conduct of the 28 GHz Negotiated Rulemaking.

III. CONCLUSION

Accordingly, for the above reasons, LQSS requests that it be named a member of the 28 GHz Advisory Committee and that the Commission revise the terms of reference for that Committee as discussed herein. LQSS also suggests specifically that the scope of the NRMC be broadened to include downlink feeder link spectrum (particularly in the 17.7-20.2 GHz band), that

¹⁵ Second LMDS NPRM, at paras. 20, 21 and 22.

¹⁶ See "Reverse Band Working as a Way of Avoiding 'In-Line Interference Between Networks using the GSO and the Feeder-Links of Networks Using Low Earth Orbits," Document 4A/221-E, August 6, 1993; "Sharing of Non-GSO MSS Feeder-Link Stations with GSO Stations Reverse Band Options," Document 4A/256-E, September 28, 1993; "Reverse Bands Operation for Non-GSO/MSS Feeder Links in the 3.6-4.2, 4.5-4.8 GHz and 5.85-7.075 GHz Bands: Application to LEO and ICO Feeder Links," Document 8D/165-E, September 28, 1993; and "Protection of GSO and Non-GSO Networks in FSS Allocations, Document 4A/TEMP/187(Rev.1) which identifies reverse-band working as one of a number of techniques to facilitate sharing of spectrum between GSO FSS networks and non-GSO MSS feeder links. These documents are a part of the work in progress within the ITU Radiocommunications Sector on the subject of sharing of spectrum by GSO FSS systems and non-GSO MSS feeder links.

the Commission's preliminary conclusion that the 20/30 GHz band can accommodate all feederlink spectrum requirements be reconsidered, and that the Commission explore use of bands below 15 GHz for feederlink use.

Respectfully submitted,

LORAL QUALCOMM SATELLITE SERVICES, INC.

By: Leslie A. Taylor

Leslie A. Taylor

Leslie Taylor Associates

6800 Carlynn Court

Bethesda, MD 20817-4302

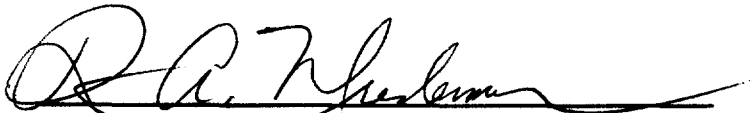
(301) 229-9341

Its Attorney

March 17, 1994

**STATEMENT AND COMMITMENT
OF APPLICANT**

Loral Qualcomm Satellite Services, Inc. (LQSS), as set forth in this Statement and Commitment and in the accompanying Application for Membership, applies for membership in the Negotiated Rulemaking Committee with respect to CC Docket No. 92-297, 59 Federal Register 7961, released February 17, 1994. As Vice President of LQSS, I hereby commit that LQSS shall actively participate in good faith in the development of the rules under consideration in this proceeding. I also commit that Jay Ramasastry and Leslie A. Taylor are the qualified individuals designated to represent the interest of LQSS, and that I am duly authorized to make this application, commitment, and designation.



Robert A. Wiedeman

Vice President, Loral Qualcomm Satellite Services, Inc.

Date: March 17, 1994

CERTIFICATE OF SERVICE

I, Andrew F. Taylor, hereby certify that on this 17th day of March, 1994, copies of the foregoing "Application for Membership and Comments of Loral Qualcomm Satellite Services, Inc." were mailed, postage prepaid, to the following:

Lon C. Levin
Vice President
American Mobile Satellite Corp.
10802 Parkridge Blvd.
Reston, VA 22091

Robert A. Mazer
Albert Shuldiner
Nixon, Hargrave, Devans & Doyle
One Thomas Circle, N.W.
Suite 800
Washington, D.C. 20005

Bruce D. Jacobs
Glenn S. Richards
Fisher, Wayland, Cooper & Leader
1255 23rd Street N.W.
Suite 800
Washington, D.C. 20037

Jill Abeshouse Stern
Shaw, Pittman, Potts & Trowbridge
2300 N Street N.W.
Second Floor
Washington, D.C. 20037

Victor J. Toth, P.C.
Law Offices
2719 Soapstone Drive
Reston, VA 22091

Cheryl Lynn Schneider
COMSAT
6560 Rock Spring Drive
Bethesda, MD 20817

Norman P. Leventhal
Raul R. Rodriguez
Stephen D. Baruch
David S. Keir
Leventhal, Senter & Lerman
2000 K Street N.W.
Suite 600
Washington, D.C. 20006-1809

Richard Parlow
Associate Administration for
Spectrum Management
National Telecommunications and
Information Administration
U.S. Department of Commerce
14th & Constitution Avenues, N.W.
Washington, D.C. 20230

James G. Ennis
Barry Lambergman
Fletcher, Heald & Hildreth
P.O. Box 33847
Washington, D.C. 20033-0847

Philip L. Malet
Steptoe & Johnson
1330 Connecticut Ave. N.W.
Washington, D.C. 20036

Lawrence F. Gilberti
President
Satellite CD Radio, Inc.
1001 22nd Street, N.W.
Washington, D.C. 20037

Henry L. Baumann
Valerie Schulte
National Association of Broadcasters
1771 N Street N.W.
Washington, D.C. 20036

Rosalee Chiara
Federal Communications Commission
Common Carrier Bureau
2025 M Street N.W.
Room 6114
Washington, D.C. 20554

Jeffrey L. Sheldon
Sean A. Stokes
Utilities Telecommunications
Counsel
1140 Connecticut Ave., N.W.
Suite 1140
Washington, D.C. 20036

Robert A. Mansbach
COMSAT World Systems
6560 Rock Spring Drive
Bethesda, MD 20817

Albert Halprin
Stephen L. Goodman
Halprin, Temple & Goodman
Suite 1020 East Tower
1301 K Street, N.W.
Washington, D.C. 20005

Henry M. Rivera
Larry S. Solomon
Ginsburg, Fledman and Bress
1250 Connecticut Ave., N.W.
Suite 800
Washington, D.C. 20036

Richard E. Wiley
Carl R. Frank
Wiley, Rein & Fielding
1776 K Street N.W.
Washington, D.C. 20006

Theodore A. Miles
General Counsel
National Public Radio
2025 M Street N.W.
Washington, D.C. 20036

George Jacobs, P.E.
George Jacobs & Associates, Inc.
8701 Georgia Avenue
Suite 410
Silver Spring, MD 20910

Alicia A. McGlinchey
COMSAT Mobile Communications
22300 COMSAT Drive
Clarksburg, MD 20871

John L. Bartlett
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006

Paul J. Sinderbrand
Dawn G. Alexander
Sinderbrand & Alexander
888 Sixteenth Street N.W.
Suite 610
Washington, D.C. 20006-4103

Edward R. Wholl
Katherine S. Abrams
2000 Corporate Drive
Orangeburg, NY 10962

Robert Giddings
The University of Texas System
Office of the General Counsel
201 West Seventh Street
Austin, TX 78701-2981

Dr. Daniel Niemeyer, Director
Academic Media Services
University of Colorado at Boulder
360 Stadium, Gate 11
Campus Box 379
Boulder, CO 80301-1667

Perry W. Haddon
1000 Ainsworth Suite 310
Prescott, AZ 86301-1667

Michael D. Kennedy
Michael A. Menius
Motorola Inc.
Government Relations Office
1350 I Street N.W.
Suite 400
Washington, D.C. 20005

Raymond A. Linsenmayer
The U.S. Interactive and Microwave
Television Association
2300 M Street, N.W.
Suite 800
Washington, D.C. 20037

Robyn G. Nietert
Steven E. Swenson
Brown, Nietert & Kaufman
1920 N Street N.W.
Suite 660
Washington, D.C. 20036

James L. Wurtz
1275 Pennsylvania Ave., N.W.
Washington, D.C. 20004

Daniel L. Bart
1850 M Street N.W.
Suite 1200
Washington, D.C. 20036

William L. Roughton, Jr.
1310 N. Courthouse Road
Arlington, VA 22201

Melodie A. Virtue
Haley, Bader & Potts
4350 N. Fairfax Drive
Suite 900
Arlington, VA 22203-1633

James F. Ireland, III
Theresa A. Zeterberg
Cole, Raywid & Braverman
1919 Pennsylvania Avenue N.W.
Suite 200
Washington, D.C. 20006

Ronald D. Maines
Maines & Harshman, Chrt'd.
2300 M Street N.W.
Suite 900
Washington, D.C. 20037

James P. Tuthill
Betsy S. Granger
140 New Montgomery St.
Room 1525
San Francisco, CA 94105

Josephine S. Trubek
General Counsel
Rochester Telephone Corp.
180 South Clinton Avenue
Rochester, NY 14646

Wade J. Henderson
National Association for the
Advancement of Colored
People
1025 Vermont Avenue, N.W.
Suite 730
Washington, D.C. 20005

Deborah H. Morris
AMERITECH
30 South Wacker Drive
39th Floor
Chicago, IL 60606

Paul J. Sinderbrand
Dawn G. Alexander
Sinderbrand & Alexander
888 16th Street N.W.
Suite 610
Washington, D.C. 20006-4103

Linda Shea Gieseler
Farrow, Schildhause & Wilson
1400 16th Street N.W.
Suite 501
Washington, D.C. 20036

Craig T. Smith
P.O. Box 11315
Kansas City, MO 64112

Michael B. Wigger
M3 Ill. Telecom. Corp.
963 Ventura Drive
Palatine, IL 60067

Richard West
Information Systems &
Administration Services
University of California
Office of the President
300 Lakeside Drive
Oakland, CA 94612-3550

Paul S. Madison
Becker & Madison
1915 Eye Street N.W.
8th Floor
Washington D.C. 20006

Howard J. Barr
Pepper & Corassini
200 Montgomery Building
1776 K Street N.W.
Washington, D.C. 20006

Robert B. McKenna
1020 19th Street N.W.
Suite 700
Washington, D.C. 20036

Jay C. Keithley
Phyllis A. Whitten
1850 M Street N.W.
Suite 1100
Washington, D.C. 20036

Joseph D. Carney
18680 Rivercliff Drive
Fairview Park, OH 44126

Richard S. Wilensky
Middleburg, Riddle & Gianna
2323 Bryan Street
Suite 1600
Dallas, TX 75201

John W. Hunter
McNair Law Firm, P.A.
1155 15th Street N.W.
Washington, D.C. 20005

George Y. Wheeler
Koteen & Naftalin
1150 Connecticut Avenue, N.W.
Suite 1000
Washington, D.C. 20036

Paula A. Jameson
Gergory Ferenbach
Public Broadcasting Service
1320 Braddock Place
Alexandria, VA 22314

John Robert Curtin
Sothern Educational
Communications Assoc.
939 South Stadium Road
Columbia, SC 29201

Anna Lim
United States Telephone
Association
900 19th Street, N.W.
Suite 800
Washington, D.C. 20006-2105

Robert M. Silber
National Captioning Institute, Inc.
5203 Leesburg Pike
Suite 1500
Falls Church, VA 22041

Tom W. Davidson
Paul S. Pien
Akin, Gump, Strauss, Hauer &
Feld, L.L.P.
1333 New Hampshire Avenue, N.W.
Suite 400
Washington, D.C. 20036

Marilyn Mohrman-Gillis
General Counsel
Association of America's
Public Television Stations
1350 Connecticut Avenue, N.W.
Suite 200
Washington, D.C. 20036

Jack McBride
Organization of State
Broadcasting Executives
939 South Stadium Road
Columbia, SC 29201

William B. Barfield
Thompson T. Rawls II
Suite 1800
1155 Peachtree Street, N.E.
Atlanta, GA 30367-6000

Michael R. Gardner
David Jeppsen
Law Offices of Michael R.
Gardner, P.C.
1150 Connecticut Avenue, N.W.
Suite 710
Washington, D.C. 20036

Vason P. Srin
Dataflow Systems
986 Cragmont Avenue
Berkley, CA 94708

George Petrutsas
Paul J. Feldman
Fletcher, Heald & Hildreth
1300 North 17th Street
11th Floor
Rosslyn, VA 22209

Albert Halprin
Stephen L. Goodman
Suite 1020, East Tower
1301 K Street, N.W.
Washington, D.C. 20005

Thomas A. Rose
Director Commercial Marketing
Microelectronics Division
M/A-COM, Inc.
1011 Pawtucket Blvd.
P.O. Box 3295
Lowell, MA 01853-3295

Frederick R. Guy
Guy Law Office
850 Fay Road
Syracuse, NY 13219

Jeffrey L. Sheldon
Thomas E. Goode
Utilities Telecommunications
Council
1140 Connecticut Avenue, N.W.
Suite 1140
Washington, D.C. 20036

Ron Milford
Rechnology Engineering Company
P.O. Box 671192
Dallas, TX 75367

Michael W. Thompson
Cardiff Broadcasting Group
2010 Jimmy Durante Blvd.
Suite 224
Del Mar, CA 92014

Todd G. Gray
Kenneth D. Saloman
Dow, Lohnes & Albertson
1255 23rd Street, N.W.
Suite 500
Washington, D.C. 20037

Jon Schill
Vice President
Rio Vision, Inc.
P.O. Box 1065
1800 East Highway 83
Weslaco, TX 78596

Roy J. Hebert
Alpha Industries, Inc.
P.O. Box 515
Baltimore, MD 21203

Robert M. Linz, PE
1820 Salem Court
Dunedin, FL 34698

S. Stanley Fischman
Managing Director
Baderwood International, Ltd.
P.O. Box 152
Rancocas, NJ 08073

Charles T. Force
Associate Administrator for
Space Communications
NASA
600 Independence Avenue, S.W.
Washington, D.C. 20024

John Haven Chapman
Chapman, Moran, Hubbard,
Glazer & Zimmerman
2000 L Street, N.W.
Suite 200
Washington, D.C. 20036

EMI Communications Corp.
P.O. Box 4872
Syracuse, NY 13221

Comsearch
11720 Sunrise Valley Drive
Reston, VA 22091

Doug Lockie
Co-Founder,
Endgate Tech. Corp.
500 Macara Avenue
Sunnyvale, CA 94086

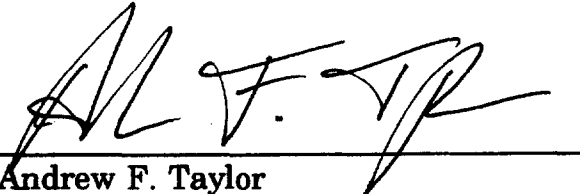
Walter Sonnenfeldt
Walter Sonnenfeldt & Associates
4904 Ertter Drive
Rockville, MD 20852

Gary M. Epstein
Latham & Watkins
1001 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

Thomas S. Tycz
Deputy Chief, Domestic Facilities
Division
Federal Communications Commission
2025 M Street, N.W.
Room 6010
Washington, D.C. 20554

James H. Clingham
Vice President Legal Department
David Sarnoff Research Center
CN5300
Princeton, NJ 08543-5300

Brian D. Oliver
President, Business Development
Bell Atlantic
1310 N. Courthouse Road
Arlington, VA 22201


Andrew F. Taylor